the solution diluted with water to one litre and the iron titrated with standard permanganate. After titration the solution containing much sulphuric acid is heated to boiling, and permanganate solution, of which 1cc. corresponds to 0·01grm. of iron, run in slowly till much peroxide of manganese has separated; or, with greater safety, potassium permanganate is added till the permanent red colour of the solution proves it to be present in excess. The excess is reduced with manganous sulphate, and the solution which now contains the chromium in the form of chromic acid is filtered through a large filter, the residue being washed with hot water. The filtrate when quite cold is treated with a known excess of iron-ammonium sulphate, of which the amount remaining unoxidised by the chromic acid is determined by titration with standard permanganate.—W. D. B.

On the Valuation of Calcium Tartrate. Dingl. Polyt. Journ. 254 [12], 491.

According to L. Weigert (*Zeitschrift für analytische Chemie*, 1884, S. 357), besides crude argol, also calcium tartrace now serves as raw material for the manufacture of tartaric acid compounds. In both cases the dealings are based on tartar-degrees—that is, the percentage of calcium tartrate contained is expressed in the equivalent quantity of potassium bitartrate. Thus 260 parts of crystallised calcium tartrate are equivalent to 188·11 parts of potassium bitartrate, or one tartar-degree is 188·11 : 260 = 1·3821kilos. calcium tartrate in 100kilos. of the crude substance, whilst 1 per cent of a kilogram of (pure) calcium tartrate = 0·7235 of a tartar-degree (Weinstein-Grad). In order to estimate its technical value the calcium tartrate is decomposed by boiling with potassium carbonate into neutral potassium tartrate and calcium carbonate. After filtering off the residue the solution is evaporated and mixed with acetic acid to bring about the formation of potassium bitartrate, and this is washed with alcohol and titrated. At the same time the excess of potassium carbonate which is used should be as small as possible, the acetic acid also added only in corresponding excess, the washing sufficiently long continued, and the mixture of potassium carbonate and tartrate, after treatment with acetic acid, must still contain some water on treatment with alcohol in order to obtain exact results. The analytical details are as follows:—5grm. of powdered calcium tartrate are placed in a small flask with 30cc. of a 10 per cent. solution of potassium carbonate, and heated for one or two hours in a water bath. The flask itself becomes strongly attacked, but this is without influence on the result. The contents are filtered into a porcelain basin, and washing with hot water is continued until the washings cease to react on red litmus paper. The filtrate is evaporated in the porcelain basin on the water bath to about 5cc. (not to dryness). 5cc. strong acetic acid are now added and moved about in the dish so as to come in contact with every portion of the residue, and the whole is placed on a water bath for one or two minutes, as the acetic acid does not react quickly enough in the cold. 100cc. of 90 per cent. alcohol are now added and allowed to stand several hours. Then it is filtered and washed with about 100cc. of 80 per cent. to 90 per cent. alcohol until 10cc. of the washings, after dilution with twice the volume of water, require only one or two drops of standard potash for neutralisation. Such a standard potash solution is used as serves for estimations of acidity in wines, and of which 1cc. corresponds to 0·01grm. tartaric acid or 0·0250Sgrm. potassium bitartrate. To the quantity of tartar found by the titration 0·0165grm. tartar is added as correction for the above quantities of liquids used, or, if 5grm. calcium tartrate is used, 0·33 per cent. tartar must be added. These corrections allow for the quantity of tartar remaining in the solutions, and are the mean of many estimations. In testing calcium tartrate for carbonate a titration is admissible, not on account of the difficulty of decomposition or the want of sensitiveness of the indicator, but on account of a remarkable displacement of the neutral point, occasioned by the impurities present in the crude calcium tartrate, the error sometimes being as much as 10 per cent. calcium carbonate. The carbonic acid must therefore be evolved for estimation by weight or volume. Calcium tartrate is sometimes met with in commerce, which contains potassium bitartrate; this is especially the case, if, in the working up of the lees, too small a quantity of hydrochloric acid has been used. It is recognised that one part of hydrochloric acid (HC_2) is capable of dissolving 5·15 parts of potassium bitartrate, but this is only true for a boiling temperature. In the cold double that quantity is always necessary in order to keep the potassium salt in solution, otherwise a retrograde action takes place. If only so much hydrochloric acid has been added in the working up of the lees, as to keep the tartar dissolved whilst hot, some of the tartar separates out, part remaining in the cloths of the press, and part separating out when the solution is treated with the powdered chalk.—G. H. B.

Errata.—In February number of this Journal, on p. 107, col. 2, line 2 from top, after "thick," insert "tar." On p. 112, col. 1, lines 15 and 62 from top, and in col. 2, lines 14 and 15 from top, for "isabonaphtha," read "ssabonaphtha." On same page, col. 1, lines 1 and 2 from foot, omit the word "however."

New Books.

A Practical Treatise on the Raw Materials and Fabrication of Glue, Gelatine, Gelatine Veneers and Foils, Isinglass, Cements, Pastes, Mucilages, etc., based upon actual experience. By F. Dawidowsky. Translated from the German, with extensive additions, including a description of the most recent American processes, by William T. Brannt. Illustrated by thirty-five engravings. Philadelphia: Henry Carey, Baird & Co., Industrial Publishers, Booksellers, and Importers, 810, Walnut Street. London: Sampson, Low, Marston, Searle, and Rivington, Crown Buildings, 188, Fleet Street; 1884.

This is an 8vo volume, bound in cloth, and containing 284 pages of subject-matter, a table of contents, and a copious index. It is also illustrated with thirty-five engravings. The subdivisions of the table of contents, forming also the chapter headings, are as follows: I. What is Glue? II. Raw Materials and Manner of Preparing them for the Manufacture of Glue; III. Fabrication of Glue; IV. Plan and Arrangement of a Glue Factory; V. Gelatine and its Preparation; VI. Uses of Glue and Gelatine; VII. Different Varieties of Glue and Gelatine, and special directions for their preparation; VIII. Cements and Pastes; IX. Pastes and Mucilages; X. Present Status of the Fabrication of Glue.

Alkali Tables for the Use of Chemical Merchants, Manufacturers and Brokers. By Oswin Bell. Newcastle-on-Tyne: Boazman, Dickson & Co., 25, Quayside; 1885.

A small pamphlet measuring about 3½ by 2½in., with paper cover; price 1s. The tables are arranged after the fashion of a ready reckoner, and are such as to enable one to see at once the value per ton from the value per unit per cwt., less various discounts.

The Gas Manager's Handbook, consisting of Tables, Rules, and useful information for Gas Engineers, Managers, and others engaged in the Manufacture and Distribution of Coal-gas. By Thomas Newbigging, Memb. Inst. of Civil Engineers. Fourth Edition. Illustrated. London: Walter King, 11, Bolt Court, Fleet Street; 1885.

Small 8vo volume, handsomely bound in morocco leather and gilt, containing 382 pages of subject-matter, tables of contents, and illustrations, of which the work contains 280, and a copious alphabetical index. The work contains concise but adequate information and practical data on the following heads: —Coal and Cannel; Retort-house, Retort-benches, Retorts and Mountings; Condensation and Condensers; Exhausters; Steam Boiler and Engine; Washers; Scrubbers; Bye-pass Mains and Valves; The Tar Well; Purification and Purifiers; Tests for Detection of Impurities; Station Meter House and Meter; Pressure Gauges; Pressure and Exhaust Registers; Gasholder Tanks; Gasholders; Station Governor and District Governors; Main Pipes; Discharge of Gas, in cubic feet per hour, through pipes of various diameters and lengths, at different pressures; Service Pipes and Fittings; Public Lighting; Consumers' Gas Meters; Internal Fittings; Public Illuminations; Illuminating Power; Specific Gravity of Gas; The Use of Gas for Cooking, Heating, and Motive Power; The Residual Products; Coal Products; Chemical and other Memoranda; Sundry useful information relating to Gas Works, Gas Apparatus, Gas Manufacture and Supply; Miscellaneous; Office Memoranda; Epitome of Mensuration; Arithmetical and Algebraical Signs; Approximate Multipliers for facilitating Calculations; Table of Squares, Cubes, Square Roots, Cube Roots and Reciprocals of Numbers; Table of the Fourth and Fifth Powers of Numbers; Table of Diameters, Circumferences, and Areas of Circles, and Sides of Equal Squares; Weights and Measures, Decimal System.

Monthly Patent List.

ENGLISH APPLICATIONS.

1885.

I.—GENERAL PLANT, APPARATUS, AND MACHINERY.

2620 C. P. Scrimshire, Blaenavon, Monmouthshire. A compound furnace. February 26

2612 J. H. Johnson, London. Improvements in filter presses. Communicated by F. Quarez and R. Quarez, France. Feb. 26

2862 J. Laidlaw, Glasgow. Improvements in centrifugal machines, otherwise known as hydro extractors. Complete specification. March 4

2961 J. Prince, London. Improvements in brick kilns, and in kilns for burning clay, china, earthenware, etc. March 6

3055 R. J. Friswell and A. Myall, London. Improvements in filter presses. March 9

3079 H. E. Newton. Improvements in materials for lining furnaces, cupolas, and similar apparatus. Communicated by J. E. Verdié, France. March 9

3133 J. Imray, London. An improved manufacture and application of materials for lining furnaces and metallurgical vessels or utensils. Communicated by H. Rémaury and F. Valton, France. March 10

3165 W. P. Thompson, Liverpool. Improvements in furnaces. Communicated by A. Backus, jun., United States. Complete specification. March 11

3267 P. Woodrow, Glasgow. A new or improved gas furnace for heating tubes. March 13

3280 M. Pass, London. A mill or apparatus for effecting at the same time the combined operations of drying and crushing or grinding, reducing, triturating, or amalgamating, applicable to the treatment of sulphate of lime, whiting, cement, guano, and other materials or substances. March 13

3364 A. G. Browning and F. G. Vivian, Llanelly. Improved retort settings. March 16

3418 R. M. McDougall, Glasgow. Insuring safety from collapse in stills or other close vessels. March 17

II.—FUEL, GAS, AND LIGHT.

2104 J. F. Braidwood, London. Improvements in means and apparatus for closing the mouths of gas retorts, applicable to other like purposes. February 21

2147 A new or improved torch and composition for same. Communicated by J. Dax, Germany. Complete specification. February 23

2189 G. Love, jun., London. Improvements in condensing apparatus for treating or purifying coal gas. February 21

2500 J. Barnett, London. Improvements in the use of artificial fuel. February 24

2533 J. A. Yeadon, Leeds. Improvements in the manufacture of coke. February 25

2681 D. J. Blaikley, London. An apparatus for detecting the presence of coal or other gas in atmospheric air. February 27

2720 W. S. Oliver, London. Improvements in the manufacture of gas for heating and illuminating purposes. Feb. 28

2856 E. Davies, Liverpool. Improvements in obtaining or collecting gas for illuminating or heating purposes. March 4

2894 W. Potter, London. An improved method of and apparatus for heating, enriching, and consuming coal gas. March 4

2918 J. O. Spong, London. Improved means and apparatus connected with the production of gas for use with liquid fire-extinguishing chemicals. March 5

3323 T. Alexander, S. Alexander, and R. Paterson, Glasgow. Improvements in apparatus for making oil gas. March 14

III.—DESTRUCTIVE DISTILLATION, TAR PRODUCTS, ETC.

2693 F. J. Rowan, Glasgow. Improvements in distilling and obtaining useful products from coal or other carbonaceous mineral, and in apparatus therefor. February 28

3285 A. W. L. Reddie, London. Improvements in the doors of coke furnaces. Communicated by C. Dahlmann, Germany. March 13

IV.—COLOURING MATTERS AND DYES.

3149 H. J. Haddan, Westminster. A manufacture of blue and violet colouring matters. Communicated by the Farbenfabriken vormals F. Bayer & Co., Germany. March 10

V.—TEXTILES, COTTON, WOOL, SILK, ETC.

2534 S. H. Sharp, Halifax. An improved means and method of making woven and felted fabrics, cardboard, and wood, waterproof and acidproof. February 25

2556 J. C. Mewburn. Improvements in drying textile fabrics or other materials. Communicated by Pierron and Dehaitre, France. February 25

3096 W. Mather, London. Apparatus for soaking, boiling, or dyeing textile materials, or subjecting them to the action of liquids or gases. Complete specification. March 10

3170 J. Scott, Dover. Scott's process for dry cleaning textile fabrics. March 11

VI.—DYEING, CALICO PRINTING, PAPER STAINING, AND BLEACHING.

2580 T. Holliday, London. Improvements in the production of azo colours on textile fibre. February 25

3219 J. A. Ashwell, Liverpool. Improvements in the process of dyeing hosiery and other like goods, and in apparatus therefor. March 12

VII.—ACIDS, ALKALIS, AND SALTS.

2173 J. W. Kynaston, Liverpool. Improvements in the manufacture of sulphur from sulphuretted hydrogen. Feb. 21

2178 W. Weldon, Burstow. Improvements in obtaining solid caustic soda from fused caustic soda. Communicated by A. R. Pechiney et Cie., France. Complete specification. February 21

2578 H. Simon, London. Improvements in apparatus for the distillation of ammonia from ammoniacal liquors, and for the treatment of the resulting ammoniacal vapours. Communicated by the Berlin Anhaltische Maschinenbau-Actien Gesellschaft, Germany. February 25

2615 J. O. Spong, London. Improved means and apparatus connected with the production of carbonic acid gas for extinguishing fire. February 26

2761 W. Weldon, Burstow. Improvements in the manufacture of caustic strontia. March 2

2762 W. Weldon, Burstow. Improvements in and relating to the utilisation of the phosphoric acid of the slag of the basic steel process. Communicated by E. Lombard, France. March 2

3098 J. Wilson, Edinburgh. Improvements in decomposing liquors containing chloride of magnesium. March 10

3326 J. H. Wright, Liverpool. Improvements in the manufacture of chloride of ammonium. March 11

VIII.—GLASS, POTTERY, AND EARTHENWARE.

2339 E. M. Knight, Halifax. Improvements in blown glass bottles and in the moulds employed in the manufacture thereof. February 20

2340 E. M. Knight, Halifax. Improvements in blown glass taps and in moulds employed in the manufacture thereof. February 20

3445 G. J. Atkins, London. A new or improved process for the decoration and treatment of glass, porcelain, metal, and other surfaces. March 17

IX.—BUILDING MATERIALS, CLAYS, MORTARS, AND CEMENTS.

2712 R. E. Goolden, London. The manufacture of improved plastic compounds. February 28